

REMARKS

Claims 9, 11, 17, and 22-32 are all of the claims presently pending in the application. Applicants have editorially amended claims 9 and 11 for clarity. Applicants have added new claims 22-32 to claim additional features of the invention and to vary the protection for the claimed invention further.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 9, 11, and 17 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Claims 9, 11, and 17 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 9 stands rejected under 35 U.S.C. § 112, second paragraph, as omitting an essential step of the claimed process.

Applicants respectfully traverse these rejections in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention of exemplary claim 9 provides a method of manufacturing a steel for use in a high strength pinion shift includes hot rolling the steel at a temperature of 700°C to 850°C under a draft ratio at an area reduction of 10% or more and high frequency hardening the steel (e.g., see Application at Table 1). Furthermore, a hardness of the steel before the high frequency hardening and after hot rolling is in a range of 24 HRC to 30 HRC, and wherein a surface hardness of the steel after the high frequency hardening is 650 HV or

more. Furthermore, a pearlite block size of the steel is 100 µm or less as a circle equivalent diameter.

Accordingly, the claimed invention provides a steel for use in a high strength pinion shaft which can provide excellent effect of less occurrence of peeling upon hobbing, having higher surface hardness and impact value and torsional strength after high frequency hardening, and having less heat treatment strains (see Application at page 5, lines 5-12).

II. THE REJECTIONS UNDER 35 U.S.C. § 112

The Examiner has rejected claims 9, 11, and 17 under 35 U.S.C. § 112, first and second paragraphs. Specifically, the Examiner alleges that the phrase “high frequency rolling” is not supported by the original specification and does not have antecedent basis in the claims.

Applicants have replaced the phrase “high frequency rolling” with the phrase “high frequency hardening” which has antecedent basis in independent claim 9 and is supported throughout the original specification.

Therefore, Applicants respectfully request the Examiner to reconsider and withdraw these rejections.

III. THE PRIOR ART REFERENCES

The Examiner alleges that, “the hardness of 24-30 HRC would have been an inherent property, since where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical process, a *prima facie* case of either anticipation or obviousness has been established.” (See Office

Action dated May 27, 2009 at page 3).

Applicants submit, however, that Kanisawa does not disclose the identical process as that recited in the claimed invention.

Indeed, the claimed invention recites, “*high frequency hardening the steel.*” Kanisawa, as conceded by the Examiner (see Office Action dated December 19, 2008 at page 3), does not teach or suggest high frequency hardening the steel.

Furthermore, the claimed invention recites, “*hot rolling said steel at a temperature of 700°C to 850°C under a draft ratio at an area reduction of 10% or more.*”

While Kanisawa discloses hot rolling carbon steels, Kanisawa does not teach or suggest performing the hot rolling under a draft ratio at an area reduction of 10% or more.

Thus, Kanisawa does not disclose the identical process as recited in the claimed invention.

Since the steel in Kanisawa is not manufactured using a method identical to the claimed method, the steel in Kanisawa would not necessarily exhibit a hardness of 24-30 HRC. Accordingly, this feature of the claimed invention is not inherent from the disclosure of Kanisawa.

Moreover, the steel of the claimed invention comprises a 3-phase texture of ferrite + pearlite + bainite, while the steel of Kanisawa comprises martensite, bainite, or bainite-martensite. Furthermore, the steel of Ishida has a mixed structure of ferrite and pearlite.

IV. NEW CLAIMS

Applicants have added new claims 22-32 to claim additional features of the invention and to vary the protection for the claimed invention further. These claims are independently

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patentable because of the novel and nonobvious features recited therein.

Applicants submit that new claims 22-32 are allowable at least based on similar reasons to those previously set forth with respect to claims 9, 11, and 17.

V. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicants submit that claims 9, 11, 17, and 22-32, all of the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. Applicants respectfully request the Examiner to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, Applicants requests the Examiner to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The undersigned authorizes the Commissioner to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,



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